

## **Issues/Considerations for an Extended Squitter Enhanced Reception Performance MOPS**

### **Overall Approach to the MOPS**

- Add detailed performance requirements and tests to the MOPS
- Do not specify the techniques to be used

Possible exception-- require conservative error correction (not agreed)

- Define more than one level of performance (not agreed)

### **Overall Test Approach**

- Inject known extended format with overlapping ATCRBS replies
- Randomly vary the timing of the ATCRBS fruit replies
- Randomly vary the ATCRBS bits
- Collect statistics on the probability of correct reception
- Make limited tests of undetected error rate (not agreed)
- Any need to test using Mode S interference?

### **Preamble/Data Block Testing**

- Test preamble detection separately from data block reception
- Different techniques are used for preamble and data block
- Simplifies test interpretation

### **Power Level**

- No need to test at full transponder power level, less than 1 mw sufficient
- Only need sufficient power at receiver input to obtain squitter reception N dB above MTL

### **Number of ATCRBS replies for Data Block testing**

- Four to five appear to be needed to fully evaluate processing technique
- ATCRBS replies that overlap must be non-coherent
- Desirable if MOPS could lead to development of special test equipment

### **Number of pulses in an ATCRBS interfering reply**

- Discussed in TLAT and decision made to use replies with 5 pulses
- Conservative in that measurements show an average of fewer than five pulses

### **Relative power level of extended squitter and ATCRBS signals and number of test runs (agreed in principal but not in details)**

- Test for single and multiple ATCRBS overlaps, Number of overlaps = 1, 3, and 5.
- Set all ATCRBS power to a given value (I), and vary signal power (S).
- E.g., use I = -70 dBm, and S = -75, -70, -65, and -60

### **Determination of performance requirements**

- Bench test using MOPS procedure for interference testing
- Record sampled output from test receiver
- Evaluate recorded data using Lincoln non-real-time processor
- Set MOPS requirement at N% at M% of non-real-time processing (not agreed)